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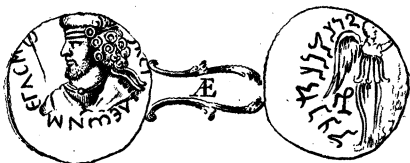
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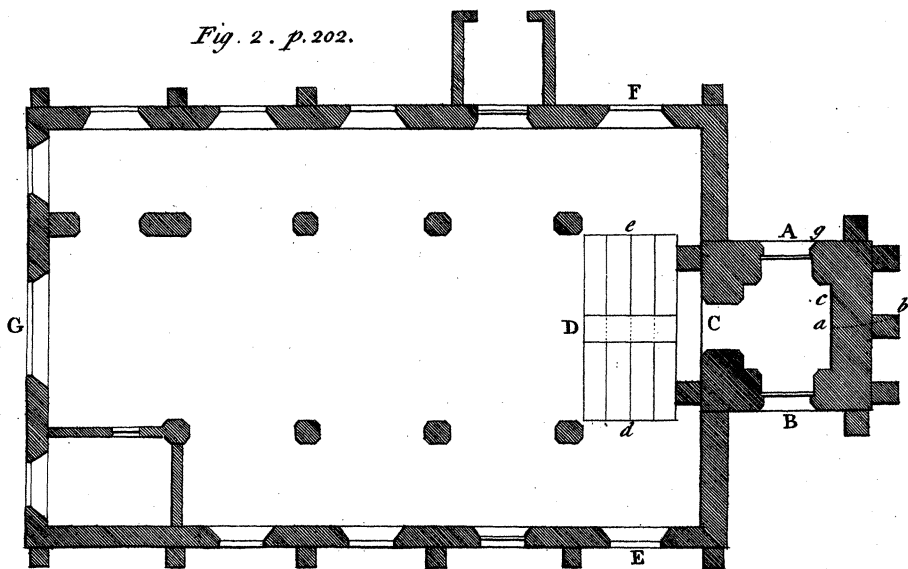
Fig. 1.



*Num. Partib. apud Joannem Swinton, A. M.
Oxonienf. R. S. S.*

	Palm.	Heb.
<i>Daletb</i>	ד	ד
<i>He</i>	ה	ה
<i>Mem</i>	מ	מ
<i>Nun</i>	נ	נ
<i>Schin</i>	ש	ש
<i>Pe</i>	פ	פ
<i>Aleph</i>	א	א

Fig. 2. p. 202.



10 0 10 20 30 40 50

Scale of Feet, 20 - 1 Inch —

self; I flattered myself you would excuse the trouble I should give you in a perusal of an account of this very strange, tho' hitherto unnoticed, phenomenon.

I am, Sir, with the greatest respect and esteem,

Your most humble Servant,

Thomas Thomlinson.

XXV. *An Account of the Effects of Lightning upon the Steeple and Church of Lestwithiel, Cornwall; in a Letter to the Right Honourable the Earl of Macclesfield, President of the R.S. By Mr. John Smeaton, F. R. S.*

Read April 21, 1757. **J**ANUARY 25. 1757. about five o' clock in the evening, returning home from the Edystone works near Plymouth, I observed four flashes of lightning, within the space of six or seven minutes, towards the west; but heard no noise of thunder *. A few days after, I was informed, that the same evening the lightning had shattered the church of Lestwithiel in a very surprising manner.

The 1st of March I was at Lestwithiel: they had then begun to repair the damages; but had not made such a such progress, but that the principal effects were equally observable as at first. I observed, and was informed, as follows:

* Distance about thirty miles.

At the time before-mentioned, the inhabitants were alarmed by a violent flash of lightning, accompanied with thunder so sudden, loud, and dreadful, that every one thought the house he was in was falling upon him; almost every one being within doors, on account of a violent shower of rain, which preceded the lightning: so that no body saw or heard any thing of the mischief done to the church, till it was observed accidentally after the shower.

The steeple is carried up, plain and square, to about 49 feet, with a kind of slate-stone, rough-cast on the outside; upon which is formed a very elegant octagon Gothic lanthorn about 9 feet high, and thereon a stone spire about 52 feet height, with a spindle and vane rising about 3 feet above the stone: so that the whole together was about 113 feet. Each face of the lanthorn finishes above with a sort of a Gothic pediment, with a little pinnacle upon each, separated from the body of the spire.

I will not affirm, that the lightning entered in at the spindle or vane at top; but will suppose it, for the sake of methodizing the facts. The vane was of plate copper, which being turned round, and rivetted, made a socket to turn upon. The spindle did not reach thro' the socket, but the weight of the vane rested upon the top of the spindle, the top of the socket being closed. About the vane were many acute angles, and some almost sharp; but I did not observe any pointing directly upward. The vane was much bruised, which might be occasioned by the fall; but the socket was rent open, as if it had been burst by gunpowder; and in such a manner, as I cannot conceive could be occasioned by the fall.

Under

Under the spindle, that carried the vane, was a bar of much the same size and length †, that passed thro' the center of several of the uppermost stones successively, in order to unite them the more firmly together, and was run in with lead: all which surrounding stones were broke off, except one, which, together with the bar, fell down within the tower.

The shell of the spire, as far down as 35 feet from the top, was no more than 7 inches thick, and the courses about the same height: so that scarce any one stone in the spire could weigh more than 30 or 40 pounds; but they were joined together at the ends with mortise and tenon, in a curious manner. Above 20 feet of the upper part was intirely thrown down, and dispersed in all directions; and, as I was informed, some pieces were found at the distance of 200 yards. A great many stones fell upon the roof of the church; and several made their way thro' both roof and cieling down into the church, breaking the pews, and whatever they fell upon. Six feet still lower the spire was separated; the westermost half being thrown down; the eastern half was left standing, but disjointed, and in so critical a posture, that it seemed ready to fall every moment: so that this was ordered to be taken down immediately; and likewise to 6 feet below, the work being found remarkably shattered. In this condition it was when I saw it. The whole of the spire I found much cracked and damaged, but the remainder of the 7 inch shell so greatly, that there seemed scarcely a whole joint.

† *Viz.* About four feet long, and one inch square.

The pediments over every face of the lanthorn were damaged more or less; but the whole ashlering of that to the N.W. was torn off from the inner wall, to which it was connected. At first sight this might seem to be done by the falling of the stones from above; but I was convinced to the contrary, by observing, that several of the pediments were damaged, and even stones struck out, where the little pinacles above them were left standing.

About the top of the lanthorn is a bell for the clock to strike on: it is hung upon a cross-bar, with gudgeons at each end; the whole being suspended to a beam laid across the tower. The cross-bar was so bent, that the clock-hammer would not touch the bell by above 2 inches. This could not be done by the falling of stones, because the beam would defend the bell from receiving any stroke in the direction to which the cross-bar was bent. As to the wire, that drew the hammer, as I was informed, not one bit of it could be found.

The bells (four in number) for ringing hung in the square part of the tower, below the lanthorn, two above and two below: the wheels of every one were broke to pieces, and one of the iron straps, by which they are fastened to the yoke, unhooked; and, as appeared to me, could not be replaced without great force, or unloosing. Whether these accidents were occasioned by the lightning, or the falling stones, I leave undetermined.

In the floor under the bells was placed the clock, cased up with flight boards. The verge, that carries the pallets, was bent downwards, as if a ten pound weight had fallen ten feet high right upon it. The

crutch, that lays hold of the pendulum, looked as if it had been cut off by a blunt tool, and heated by the blow, till it was coloured blue, at the place where it was cut. It turned at a right angle, and might be about $\frac{4}{10}$ of an inch broad by $\frac{2}{10}$ thick. As to the pendulum, which hung pretty near the wall, the upper part of the rod was struck with such violence against the wall, that a smart impression thereof was made in the plaister: and near the upper part of the impression appeared a circular shady ring, of a blackish colour, something like as if a pistol had been discharged of powder, and the muzzle held near the wall. The casing of boards round the clock remained unhurt.

In this story, on the north and south side, are two narrow windows or air-loops; against the upper part of which, on the outside, were fixed the timber dials belonging to the clock, both which were blown off, and broke to pieces, possibly by the fall: and not only that, but part of the stone jambs were broke out also, near to where the rod passed, that carried the hands. In this story also was a sort of window or air-loop on the east side, that had communicated with the church, but was stopped up with lath and plaister: also several putlock-holes for the scaffolding, which had gone thro' the wall into the church, but were stopped up with stone, and plaistered over: all these were forced out into the church, and the plaister torn from the wall.

The ground-story of the tower or bellfry is expressed in the plan (*See TAB. IV. Fig. 2.*). The south entrance A and north B were shut with wooden doors. The upper part of the eastern C, that

that communicated with the church, was made up with lath and plaister; and before it, in the church, are the seats D, raised one higher than another; so that the floor of the seats next the wall was half up the door-way; consequently the vacuity under the seats lay open to the bellfrey.

About the middle of the westermost side, at *a*, one of the paving-stones, about 1 foot square, and $1\frac{1}{2}$ inch thick, was thrown up, and a hole pierced into the wall, rather below the level of the pavement, into which one might put three fingers. On the opposite side, the south-west angle of the middle buttress at *b* had a stone taken out even with the ground, and a hole continued in to the buttress; so that there is great appearance of its reaching thro' both wall and buttress, which together is 8 feet; but the hole was too rugged and crooked to put any thing thro'. Besides this hole, this wall was pierced in several places, and the plaister thrown off both within and without. One place within, about 4 feet above the floor, right over *c*, was a hole of about 14 inches square pierced 6 inches in the wall; and so near square, that I inquired, whether it had not been made by art; but was assured of the contrary.

The north and south doors of the tower were both blown out, and broke in many pieces. Many of the arch-stones over both doors were disjointed and displaced: two of the stones making the jamb of the south door at *g* were forced quite out, and one of them broke.

The vaulting of the east door-way C was plaistered underneath: the plaister was sprung from the stone in 30 or 40 places, like as if a small bar of iron had

been drove from above thro' the joints of the stone, and thereby forced off the plaister with its end. The lath and plaister partition, which stopped up the upper part of this door-way, was forced into the church, and the wainscoting making the back of the last seat was torn from the wall from end to end. Some part of the vapour seems to have made its way thro' the cavity under the seats; for most of the boards composing the rise of the steps from seat to seat were blown out forwards; and several panels of wainscot at each end of the seats, at *d* and *e*, were forced out, and broke. Hence the vapour seems to have divided itself into three branches; one moving directly forward to the east window G, being 13 feet wide, and about 20 feet high, consisting of five principal lights divided by stone mullions: two of the lights were in a manner wholly destroyed, and several large holes in those remaining; the glass and lead being carried outward, like as if an harlequin had leaped thro' the window. The north window E, fronting the broken panels at *d*, was very much shattered: but the south window F had scarce a whole pane left.

It is farther to be noted, that almost all the lights in the church, tho' not broke, were bagged outward; but those parts remaining intire in the window D most remarkably so.

N. B. It was said in the London papers, that the organ was intirely spoilt: it is certain there is not, nor ever was, any organ in this church.